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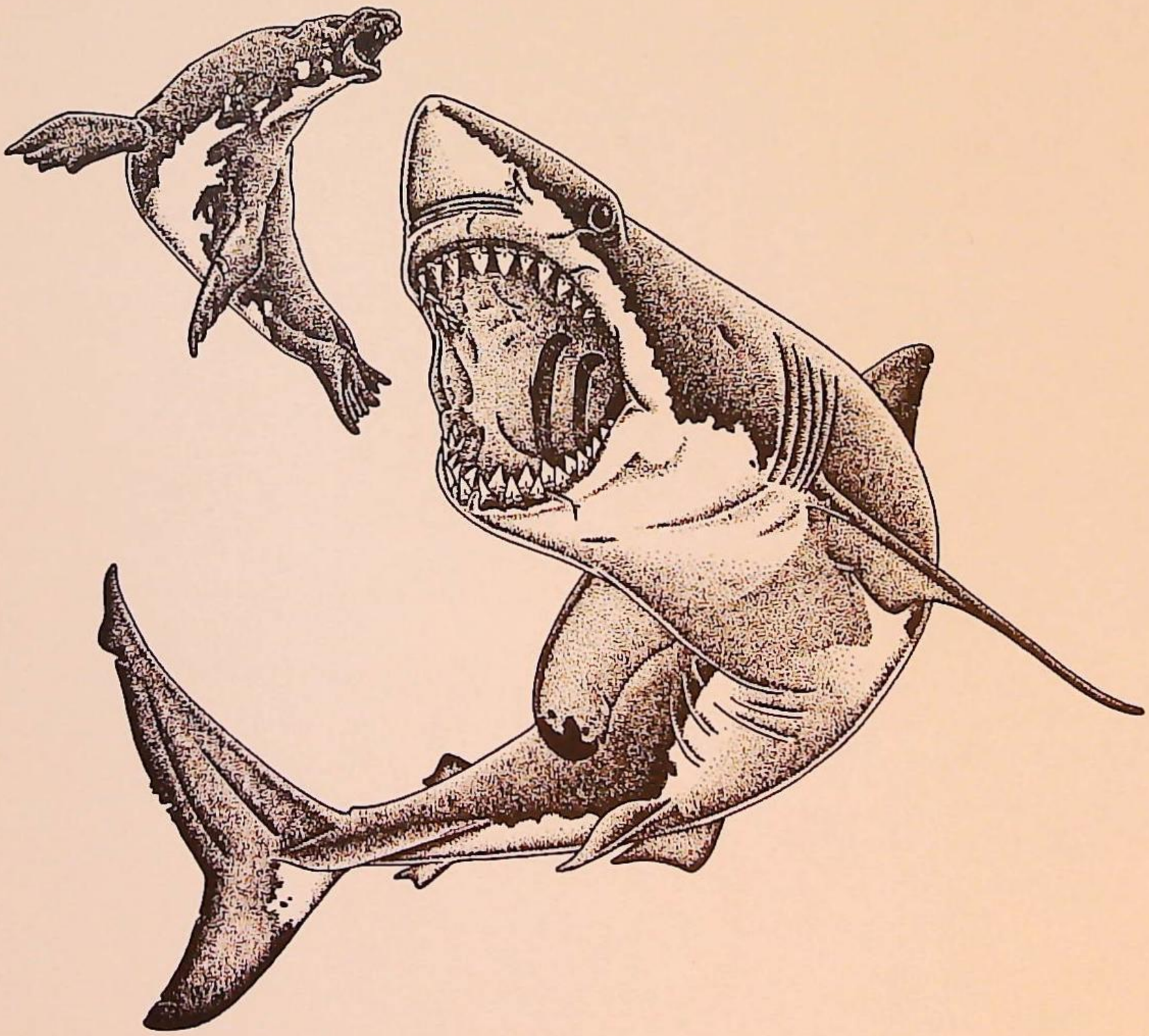

Editorial

It has been argued in the past that cryptozoology requires specialization. After all, cryptozoology is a very wide field, and in traditional zoology, one who studies the social system of ants will not typically be asked to explain the mating behaviour of the nurse shark. In cryptozoology, however, one who writes about sasquatch one month may write about sea serpents the next. How can we be sure that all facts and interpretations are accurate? I have found that some cryptozoologists often write about things of which they know very little, and therefore make fundamental errors of reasoning and fact. This hurts the credibility cryptozoologists strive for from more mainstream scientists.

Thus the argument goes: in order to ensure accuracy in cryptozoology, research on sasquatch should be done by a primatologist or physical anthropologist, and research on sea serpents should be done by a marine biologist, preferably one who has good knowledge of both invertebrate and vertebrate marine organisms. However, this need not be the case. The key ingredients in good cryptozoological research, I think, come down to the ability to do excellent, comprehensive research (in particular, tracking down references at libraries and inquiring to experts in certain fields relating to the subject) and the ability to think critically. This may seem an easy solution, but—and excuse the cliché—it is easier said than done. Good library research is laborious and tiring work, involving, first, the search for the references for which you are looking (in cryptozoology, the references involve all subjects, from folklore to zoology); the lugging of piles of journals, books and other publications; and repetitious photocopying of hundreds upon hundreds of pages. When applicable, one must also be able to ask useful and pertinent questions in eyewitness interviews, properly record and preserve physical evidence such as tracks and hair, and perform rigorous, in-depth field research.

The idea of critical thought is somewhat more abstract. The researcher must be able to first synthesize all of the information he has gathered from his many sources, apply it to a logical framework, and decide if there is a cryptid worth investigating among all the piles of paper. In too many cases, cryptozoologists base entire theories or promote the existence of a cryptid upon very slim evidence that could easily be explained by some other cause. In many cases, cryptozoologists simply do not use sufficient critical thought in their investigations, putting too much weight on anecdotal evidence and pushing forward scientifically unacceptable theories as an explanation. This is where research is extremely important; it should help enormously in your decision of whether the cryptid you think may exist is actually probable in the light of present scientific knowledge.

An example of this is the suggestion that a small sauropod dinosaur lives in the tropical jungles of central Africa. The majority of evidence backing up this claim is anecdotal in nature; are we to believe, based on stories by a few natives and missionaries, that there is a dinosaur living in the Congo? Critically speaking, we definitely should not. There is much more evidence—hard evidence—that all dinosaurs went extinct 65 million years ago. Some cryptozoologists would counter this with the coelacanth analogy—if it survived that long without any fossils to show for it, then why not dinosaurs? Research on this subject would show us that the coelacanth is really a pointless analogy; it survived in an area of poor fossilization (the deep-sea), and has a very fragile, inconspicuous skeleton compared to those of dinosaurs (and thus wouldn't fossilize as well or be readily noticed). Furthermore, coelacanths on a whole were already becoming rare in the fossil record by the end of the Cretaceous, when they supposedly disappeared, whereas dinosaurs are very prominent in rocks of that age. Most importantly, it has been revealed recently that post-Cretaceous coelacanth fossils are known (Darren Naish, pers. comm.). Basically, it is ridiculous to compare the geological record of a fish to that of a dinosaur, because they are such different creatures. Yet many cryptozoologists make this error—among others—time and time again.

Critical thought and good research are key in cryptozoology, and until this practice becomes commonplace among cryptozoologists, cryptozoology will remain disrespected by traditional zoology—and rightly so.

– Ben S. Roesch

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On the cover: *Carcharodon megalodon* chases down *Allodesmus*, an early pinniped.
Artwork Copyright 1998 Richard Martin.

Letters

We welcome letters on any thoughts you may have about TCR or its contents. If you write us a letter, please tell us whether or not it is fine with you to publish it in the "Letters section of upcoming issues. We reserve the right to edit letters for content and/or clarity.

Richard White's Nessie Photos

I was interested to read Ben Roesch's comments in "A Compendium of Cryptids" in Vol. 3 No. 1 on Richard White's alleged Loch Ness monster photos. I haven't seen the photos either, but it appears that Rip Hepple, publisher and editor of the periodical *Nessletter*, has. His comments on the photos, which appeared in *Nessletter* No. 133, are of interest:

> In [*Nessletter*] 131 I reported on a series of photographs that Richard [White] took in March 97. As I wrote then, I am certain they were of a decaying boat wake. The one unusual aspect was the small dark object which appeared in one of them. The last one I think. Once again, I felt it was about a foot high, rather than three or four feet, and may be explained as a water bird surfacing among the wake disturbance. Or as Steve Feltham suggested, a piece of flotsam agitated by the wake disturbance. In any case, despite being a moment of high excitement for Richard, I am sure it was definitely not of any significance as a Monster sighting.

He then goes on to express his surprise at Richard winning the William Hill award.

Nick Molloy
Croydon, Surrey, England.

Exchange

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A Compendium of Cryptids

("All the latest cryptozoology news fit to print")

by Ben S. Roesch

Coelacanths Found off Indonesia

A fantastic find made a year ago finally went public in late September: the discovery of what appears to be a population of coelacanths (*Latimeria chalumnae*) (Fig. 1) in the waters off northern Sulawesi, Indonesia. Prior to this find, the coelacanth was believed to exist in only one place in the world: the Comoros Islands off Africa. The initial discovery of the coelacanth was a stray specimen fished up off South Africa in 1938, which stunned scientists worldwide: the coelacanth represented a lineage believed extinct for 65 million years. Various reports suggesting that the coelacanth inhabits other parts of the globe have been made and discussed by cryptozoologists over the years, but the evidence was never conclusive (see below). Now, it is a scientifically accepted fact that the coelacanth lives not only off the Comoros, but off Indonesia—10 000 km (6 250 miles) across the Indian Ocean—as well.

The discovery was described in a short letter to the journal *Nature* by Dr. Mark Erdmann, a University of California, Berkeley, postdoctoral fellow. Erdmann and his wife, naturalist Arnaz Mehta Erdmann, were walking through a fish market in Manado on the last day of their honeymoon in the region, when Mrs. Erdmann noticed a large fish being wheeled by on a cart. She instantly recognized it as a coelacanth. They were unable to buy the fish because they had to travel home the next day, but took some photographs. The photographs were reason enough for the National Science Foundation, the Indonesian Institute of Sciences and the National Geographic Society to offer grants for further research, and Erdmann was soon back in Sulawesi with colleagues to find fishermen who knew of the fish. The fish is well-known locally; called the *raja laut* ("king of the sea"), it is a rare animal that is up to 2 m (6 ft) long and weighs as much as 65 kg (143 lb). Then, on July 30, 1998, fisherman Om Lameh Sonathon and his crew were netting for deep-water sharks when they brought up a 64 lb (29 kg), 4 ft (1.2 m) long *raja laut* off the volcanic island of Manado Tua. Upon towing the fish to shore, they promptly alerted Erdmann. Though it was near death, Erdmann was able to film the coelacanth swimming for three hours and then, when it died, he froze it for later study.

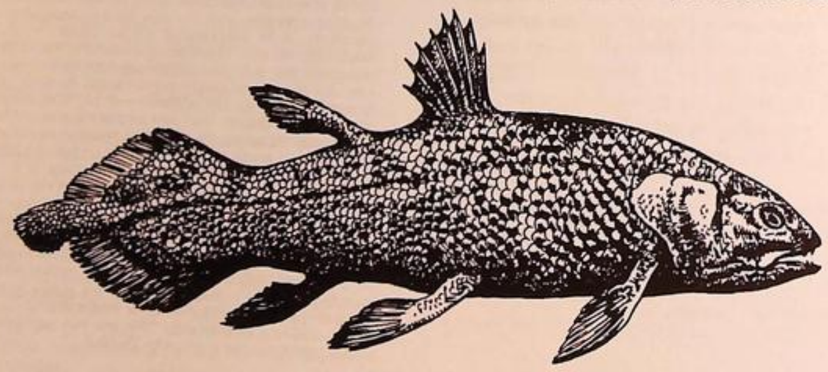

Fig. 1. Coelacanth (*Latimeria chalumnae*). Illustration by Richard Ellis (1994).

The coelacanths from Indonesia appear to be of the same species as the Comoros population, though they are coloured brown while the latter are a blue colour. As Forey (1998) points out, however, the great distance between the two populations could mean they may be distinct from each other, perhaps even to the species level. The new find suggests that the coelacanth is a widely but sparsely distributed deep-sea species, and other populations may turn up elsewhere in the Indian Ocean and perhaps in the Pacific Ocean. It is interesting to note that the Indonesian coelacanths and the Comoros coelacanths share a similar habitat; both populations are found about 150 to 200 m (500 to 650 ft) deep off volcanic islands, where the sea floor is rocky and caves and crevices are plentiful. Such habitats are found at many islands in the Indian Ocean.

(It is certain that the Indonesian coelacanths *do* represent a new population, and not strays. Three stray coelacanths, pulled from the Comoros by the powerful Mozambique current, have been recorded in the nearby Mozambique channel [as mentioned, the very first specimen was reported from South Africa], but Indonesia is too far away to be associated with strays.)

Erdmann and his colleagues are planning to return to Sulawesi to lead submersible expeditions to a site they think harbours the population, so they can observe the coelacanths in their natural habitat. They also want to obtain tissue samples so that they can perform DNA analysis and protein profiling to confirm whether the population represents the same species as the population at the Comoros. If the populations are distinct species, the scientists will be able to ascertain how long they have been separated using mtDNA techniques.

The discovery of a second population of coelacanths brings up the important factor of conservation. The Comoros population has dwindled to about 200 animals, and population estimates of the Indonesian coelacanths are impossible to calculate, at least until further research can be done. It is of paramount importance that everything be done to preserve both of these populations, and hopefully conservation efforts will be employed soon.

The cryptozoological significance of this new find is great. Frankly, it's nice to see a cryptozoological theory pan out for once. As mentioned previously, it has been suggested by cryptozoologists that the coelacanth may exist elsewhere besides the Comoros, including the Gulf of Mexico and the waters off Spain (see Greenwell 1994, Bille 1995, Shuker 1995, Raynal & Mangiacopra 1995, and Raynal 1998a for reviews). The discovery of a new population in Indonesia doesn't mean that all reports of widespread coelacanth populations are true, but it does add an incredible amount of supporting evidence. One unpublished report of interest was transmitted by Michel Raynal soon after the discovery of the Indonesian coelacanths was announced. In an Internet posting, Michel Raynal related how he was informed by Bernard Séret, an ichthyologist at the Muséum Nationale d'Histoire Naturelle (Paris), of an unusual occurrence off Java, about 1600 km (1000 miles) from Sulawesi. A fisheries scientist named Mr. Serres told Séret that he caught a coelacanth one night while fishing for shrimps at a depth of about 50-80 m (160-260 ft) on an ORSTOM (Office de la Recherche Scientifique et Technique Outre Mer) expedition in 1995. The fish is reportedly locally known as *ikan fomar*. The captured coelacanth was apparently sent to "an Oceanographic Institute in Java, where it should still be," as Raynal put it. Further research is in store, and one can only hope that more populations of coelacanths will surface in the near future.

Sources: Anon. 1998. Biologist finds second population of primitive fish. *Associated Press*, September 24. // Bille, Matt. 1995. *Rumors of Existence*. (Surrey, B.C.: Hancock House). // Browne, Malcom W. 1998. Second Home of Fish From Dinosaur Age Is Found. *New York Times*, September 24. // Ellis, Richard. 1994. *Monsters of the Sea*. (New York: Alfred A. Knopf.) // Forey, Peter. 1998. A home from home for coelacanths. *Nature* 395 (September 24), 319-320. // Greenwell, J. Richard. 1994. Prehistoric Fishing. *BBC Wildlife* 12 (3): 33. // Oguro, Jodi. 1998. UC Berkeley biologists find fish species not unique to Africa. *University Wire*, September 24. // Raynal, Michel. 1998a. An unknown species of coelacanth in the Gulf of Mexico? *http://perso.wanadoo.fr/cryptozoo/coel_eng.htm*. // Raynal, Michel. 1998b. Posting to the Cryptozoology mailing list, October 1. // Raynal, Michel, & Mangiacopra, Gary S. 1995. Out-of-Place Coelacanths. *Fortean Studies* 2: 153-65. // Shuker, Karl. 1995. *In Search of Prehistoric Survivors*. (London: Blandford).

More on Messner and the *Yeti*

The *yeti* made an appearance at the Frankfurt Book Fair in October (1998), thanks to a new book by mountaineer Reinhold Messner. In *The Cryptozoology Review* Vol. 2 No. 3 (pp. 4-5), I discussed his claims regarding the famous abominable snowman. Apparently, Messner had photographed and filmed *yeti* in the Himalayas and even had a *yeti* skeleton in his possession. The photographs and a narrative of his adventures were to be published in an upcoming book he had written. The overall impression at the time was that Messner had very important evidence that could prove that the *yeti*, after all, does exist.

What Messner did not reveal to the public at that time was what exactly his evidence showed the *yeti* to be. In his recently published *Yeti-Legende und Wirklichkeit* (an English edition will be published by Macmillan next year), Messner expounds his facts and opinions. Far from suggesting that the *yeti* is a hypothetical ape-like creature (a popular explanation among the public and cryptozoologists alike [Fig. 2]), Messner is convinced that the mystery creature is actually a bear.

Fig. 2. A typical reconstruction of the *yeti*, based on available evidence. From Heuvelmans (1958).

The exact type of bear that Messner is alluding to is unclear, though it is most likely that it is the Himalayan red bear (*Ursus arctos isabellinus*), a sub-species of the grizzly or brown bear. Messner describes the bear responsible for the *yeti* as growing up to 3.4 m (11 ft) in length. This is an enormous size: the largest bear ever measured was an outsized specimen of polar bear (*Thalarctos maritimus*) that stood 11 ft 2 inches (3.4 m) high. The largest brown bear was measured at a standing height of about 10 ft (3 m) and a weight of 1720 pounds (790 kg). Further points that Messner think support the red bear identity include its ability to walk on all fours as well as bipedally (surely he does not suggest it can easily do the latter, as bears do not readily walk in the upright position), its human-like faeces, nocturnal habits, footprints (*yeti* footprints have often been found without claws marks, though this may be an artifact of preservation) and a distribution that matches that of the *yeti*. According to Messner, the red bear is

known to the locals as the *chemo* and local legend says that it brings bad luck to anyone who see it.

It is unclear if Messner is suggesting that both variants of the *yeti*—the larger *dzu-teh* and the smaller *meh-teh*—are red bears. The *dzu-teh* has been suggested to be a red bear by others previous to Messner, including Tom Slick, Charles Stonor of the 1954 Daily Mail Snowman Expedition, and Bernard Heuvelmans. The *meh-teh*, on the other hand, does not fit the bear identity as well as the *dzu-teh*, as it is described as being more bipedal and more human-like. My feeling is that Messner is of the opinion that both varieties of the *yeti* are red bears. The details of his claims have not been discussed much in the press; until more details are forthcoming, I reserve my comment, except to say that Messner's ideas may not be original and that his claims do not seem as solid as he thinks.

Meanwhile, it was reported that an American climber had an encounter with two *yeti* on the Chinese side of Mount Everest. Around September 17 (1998), Craig Calonica and his Nepali cook were descending from 6 500 m (21 300 ft) towards base camp at 5 200 m (17 000 ft) when they saw a hairy, man-like figure "ripping and pulling at something". Calonica got within 30 m (100 ft) of the creature, at which point it noticed him and stood up. It was about 6 ft (2 m) tall and had thick, shiny black hair. As it walked, Calonica noticed a slightly hunched but man-like gait. It had very long arms and big hands. About 15 seconds later, a second creature, similar to the first but smaller, appeared. "... I saw something and what I saw was not human ... [It] was not a gorilla, not [a] bear, not a goat and it was not a deer," Calonica said. Despite Calonica's assertion, some remained slightly doubtful, including Toby Murcott, the BBC's science analyst. He suggested that while Calonica may be telling the truth, it is possible he was suffering from altitude sickness, which could have resulted in hallucinations.

Source: Anon. 1998. American climber says he has seen the "Yeti". *Reuters*, October 13. // Bille, Matt. 1998. Posting to the Cryptozoology Mailing List, October 11. // Coleman, Loren. 1998. Posting to the Cryptozoology Mailing List, October 11. // Crossland, David. 1998. Mountaineer destroys myth of the "Yeti." Reuters, October 6. // Heuvelmans, Bernard. 1958. *On the Track of Unknown Animals*. (New York: Hill and Wang). // Lawson, Alastair. 1998. Himalayan climber's abominable sighting. *BBC News*, http://news.bbc.co.uk:80/hi/english/world/ south_asia/newsid_195000/195162.stm, October 17.

Gigantic Fish or Just Whales?

In the July 23, 1969, issue of the *Baltimore Sun* newspaper is a short item entitled "Gigantic Fish Are Spotted Under Sea." An Associated Press report out of Savannah, Georgia (U.S.A.), it reads:

> Marine creatures 10 times their normal size have been spotted twice by the crew of the research submarine Ben Franklin on her 30-day underwater mission to explore 1,200 miles [1 930 km] of the Gulf Stream.
>
> The six men aboard reported to their surface support ship via sonar telephone Tuesday that they had seen "eight blackfish 30 feet [9 m] long."
>
> Walter Muench, director of the Ben Franklin mission for the Grumman Aerospace Corporation, said at his West Palm Beachl [sic] Fla., headquarters, "We still find it hard to believe, but they say those fish were 30 feet long. We hope the underwater photos confirm this sighting when they surface."

For the cryptozoologist, this report at first seems to be of great interest. However, the key to this mystery lies in the fact that the word "blackfish" is not separated into two words, i.e. "black fish". Though not widely used today, blackfish is a common name for pilot whales (*Globicephala* spp.), both the long-finned species (*G. melaena*) and

the short-finned species (*G. macrorhynchus*). The larger of these species, *G. melaena*, attains a maximum length of 6.2 m (20 ft) in males (Leatherwood and Reeves 1983). This is 3 m shorter than the figure given by the *Ben Franklin* crew, but it is more likely that their estimate was incorrect than that they actually saw 9 m long fish under the surface of the Gulf Stream. Furthermore, pilot whales are usually found in schools of several animals, a fact that corresponds nicely with the crew's observations. To cap things off, in his book on the voyage, Jacques Piccard (1971) makes no mention of observations of giant fish (he does, however, mention an attack on the submarine by an overzealous swordfish and the sight of a huge school of tuna passing the vessel by), and as far as I know no further news reports confirmed or rejected the sighting reported in the Associated Press item of July 23, 1969.

Obviously, there's no real mystery in this story, but it does highlight the supreme importance in cryptozoology of fully researching alleged encounters with unprecedented creatures. It also points out that one should never accept a sighting in any way unless it is supported by a large body of corresponding evidence (even then, caution should be exercised).

Sources: Anon. 1969. Gigantic Fish Are Spotted Under Sea. *Baltimore Sun*, July 23. // Leatherwood, Stephen and Randall R. Reeves. 1983. *The Sierra Club Handbook of Whales and Dolphins*. (San Francisco: Sierra Club Books). // Piccard, Jacques. 1971. *The Sun Beneath the Sea*. (New York: Scribner's).

Loch Ness: Film, Sonar and a Submarine

The Loch Ness monster is still figuring in the news. The biggest news of late is the shooting of another film purporting to show the evasive creature. The 20 second video footage was taken on September 5 by Geoff Mitchison, of Newcastle-upon-Tyne, while on a pleasure cruise on the lake with his family. It apparently shows the head of an unidentifiable animal moving through the water. "It was only there for a few seconds and it wasn't going very fast, but with the ripples it looked like the bow of a boat going through and then it was gone," Mitchison said. Gary Campbell, president of the Loch Ness Monster Fan Club, says it is the best footage of Nessie he has ever seen. He told reporters: "This is fantastic moving footage and we are very excited by what we have seen. The pictures show the head of something moving along in the water, which initially looks like a seal. However, the more you look at it the more you realise it is not behaving like a seal and doesn't even look like one. The head is a different shape, there is no evidence of a seal-like body, and the way it dives down is very uncharacteristic of seals."

Despite Campbell's opinion, most researchers, including Chris Packham of the BBC's "X-Creatures", think the animal in the footage was, in fact, a wayward seal. Packham noted: "If this had been in the Lake District, they'd have thought it was something else, but not a monster. Seals, dolphins and porpoises can come into the loch from the Caledonian Canal and River Ness. But they are all visitors. The loch can't sustain such a big creature. There's not enough fish. The behaviour suggests it was a seal and the way it moved through the water suggests it was a seal." Experts at the Edinburgh also examined the footage and concluded that it showed a seal, though they couldn't confirm the fact as the head movement was unusual. Despite this, Campbell remained steadfast: "Edinburgh Zoo couldn't say for sure it was a seal and that's good enough for me. If it was a seal more people would have seen it. [Mitchison's] video is so clear you could identify it if it was a seal, a dog or a [scuba] diver. This video footage is as good as it gets." Campbell's comments strike me as a little unprofessional and perhaps careless. Most people do not know what a seal looks like in water or how it behaves, and anything unusual seen in Loch Ness is automatically called a monster because of the lake's reputation. Furthermore, seals have been recorded from Loch Ness (I am unsure and skeptical of Packham's claim that dolphins and porpoises have also entered the lake), such as one that entered the lake in December 1984 and was finally shot in 1985. Bauer (1986) believes that this seal was the only one ever seen further up the River Ness than Inverness, and was seen many times and immediately recognized as a seal. On the other hand, Steuart Campbell (1986) wrote that "seals occasionally enter Loch Ness", implying that there have been more than one entry to the lake by seals. In any case, Occam's razor teaches us to embrace the simplest possible

explanation, and in this case—despite the unusual head movements and the lack of reports that would probably come if a seal entered Loch Ness—the seal explanation fits well and offers a rational, simple explanation (I do point out, however, that I have not seen the footage).

Meanwhile, sonar contact were made in July (1998) with an unusual object 50 feet (15 m) above the floor of Urquhart Bay by cruise captain George Edwards. The water depth in that area is more than 800 feet (244 m). In 1990, Edwards made sonar trackings of a large cavern in the immediate vicinity of this new contact. Of the new sonar tracking, Gary Campbell, who seems to be involved with most Nessie-related affairs at Loch Ness, said: "It is very exciting. This is about 20 times bigger than the contacts we had with salmon nearer the shore. The image certainly merits further specialised investigation." As of yet, I am unaware of the results of any analysis of the trackings.

Finally, the Loch Ness monster will have a deep-water visitor next June (1999), when former U.S. Navy submariner Dan Taylor, 58, will launch a minisub he has built to search for the elusive beast. Taylor financed the construction of the 40 ft (12 m), 35 ton minisub, called *Nessa*, by selling his house. Taylor is no stranger to the depths of the Loch Ness; in 1969 he led a minisub expedition financed by World Book Encyclopedia. At 120 ft (37 m), his submarine sprung a leak and he had to abandon the venture. Now, he wants to try again. Taylor aims to gather film, sonar and even tissue samples to help prove the Loch Ness monster's existence. Along for the ride is cryptozoologist Loren Coleman, who was invited as a technical observer. Hopefully, the expedition will be a great success.

Sources: Anon. 1998. New Nessie spotting. *Scottish Daily Record*, July 31. // Anon. 1998. Nessie lies very low on sonar. *The Herald*, July 31. // Anon. 1998. Homing in on Nessie. *Sunday Mail*, August 2. // Bauer, Henry H. 1986. *The Enigma of Loch Ness*. (Urbana and Chicago: University of Illinois Press). // Campbell, Steuart. 1986. *The Evidence about the Loch Ness Monster*. (Wellingborough: Aquarian Press). // Coleman, Loren. 1998. Loch Ness minisub expedition picks a passenger. *Informational notice*, October 3. // Denholm, Andrew. 1998. Nessie spotters call film most exciting breakthrough in years. *The Scotsman*, September 10. // Fulton, Rick. 1998. GMTV give Loch Ness the Seal of Approval. *Scottish Daily Record*, September 10.

Notes on Various New and Rediscovered Species

• A biological survey of U.S.-owned Navassa Island, a small, rocky piece of land 64 km (40 miles) west of Haiti, has turned up 800 animal and plant species, with about 250 of these being new to science. Many of these are endemic to the island. The desert island's area is only about 5 square km (2 square miles), and has been largely untouched by humans because of its waterless, rocky, scorpion-rich and generally hostile conditions. The absence of humans has allowed the flora and fauna to flourish; the island also boasts pristine coral reefs. Besides feral dogs and goats left on the island by miners (the island was stripped of guano in the 1800's) and fishermen, the survey scientists found the Navassa ground dove (which was thought extinct), "unique species of lizards", wingless crickets and other animals. Several new species of plants were also discovered. Measures are now being taken to make sure that this isolated and unique biological site is preserved.
Sources: Anon. 1998. Treasure trove of species found on Caribbean isle. *Reuters News Service*, August 3. // Warrick, Joby. 1998. Unsullied by Humans, U.S. Island Is Biological Motherlode. *Washington Post*, August 17.

• According to a survey done by China's State Environmental Protection Administration (SEPA), about 44 new species of tetrapods have been found in recent years in the Three Gorges Area. The new species include twelve mammals, twenty-one birds, six reptiles and five species of amphibians. These new animals, about which I have no information, make up some of the more than 360 tetrapod species in the region.
Source: Anon. 1998. New animal species discovered in Three Gorges Area. *Xinhua News Agency News Bulletin*, June 18.

• A tiny new monkey, named the dwarf marmoset (*Callithrix humilis*), has been described from Brazil. The creature

is only 38 cm (15 inches) long, 23 cm (9 inches) of which is its tail, and was described in *Goeldiana Zoologia* by a team of biologists from Conservation International (Washington, D.C.). The organization's president, renowned primatologist Dr. Russell Mittermeier, said of the find: "This discovery is so remarkable because this distinctive primate was found in a forest only about 50 minutes away by small plane from the densely populated city of Manaus. If we are still finding new primates species in such accessible habitats, just imagine what species remain undiscovered in the more remote stretches of tropical forest." Seven new primates have been described in Brazil since 1990, pushing the total in the country to 77, 39 of which are endemic. These numbers make Brazil the country with the highest primate diversity in the world. Unfortunately, much of the area in which primate diversity is so high is under threat from deforestation and other habitat damage. The new dwarf marmoset is itself in some danger, having the smallest distribution of any primate in the Amazon; it inhabits the west bank of the lower Aripuana River and along the east bank of the Madeira River. Its population is numbered only in the thousands.
Source: Bowen, Lisa. 1998. Brazil adds new primate to world record. http://www.conservation.org/web/news/ pressrel/98-0630.htm, June 30.

• The fourth muntjac deer discovered this decade in southeast Asia will soon be described. The new species, which is small even for a muntjac deer, has been dubbed the "leaf muntjac." The find is based on one specimen and ten skulls from an area between the Mai Hka and the Mali Hka Rivers in Myanmar (formally known as Burma). It has yet to receive a scientific name.
Source: Bille, Matt. 1998. News and Comment. *Exotic Zoology* 5 (6): 6.

• A newly discovered species of mouse that lives only on the Cajas Plateau in the Ecuadorian Andes was described recently. *Chibchanomys orcesi* feeds on fishes and belongs to the sub-family of the Neotropical fishing mice (Ichthyomyini). Although it is almost blind, it dives into streams at night and detects its piscine prey using its long and highly sensitive whiskers.
Source: Bille, Matt. 1998. More News. *Exotic Zoology* 5 (5): 7.

• American ornithologists Pamela Beresford, Dr. Joel Cracraft and colleagues announced the discovery of a new species of robin from the Central African Republic at the 22nd International Ornithological Congress in Durban, South Africa, this summer. Beresford et al. first collected the bird in 1996, at which time they thought it was a typical forest robin; closer inspection and comparison to over 300 specimens of forest robin species from across Africa showed it was actually something new. The new robin is small, and differs from other forest robins in its bright yellow-red throat and upper breast, as well as its yellowish stomach (other forest robins have white stomachs and upper breasts). The species will be named in a scientific description to be published sometime next year.
Source: Astor, Michael. 1998. New robin species found in Africa. *Associated Press*, August 21.

• According to Kate Byrne and Richard Nichols, from London University's Queen Mary and Westfield College, mosquitoes of the species *Culex pipiens* that entered London's subway system when it was built 100 years ago are evolving into a new species. They dubbed the new species *C. molestus*, and a paper is in press in the journal *Heredity*. Though *C. pipiens* normally feeds on bird blood, the individuals trapped underground appear to have adapted to feed on the blood of animals more commonly found underground, such as rats, mice and of course humans. Genetic studies on populations of the species aboveground and underground showed a large difference between the two groups. Furthermore, most efforts to breed aboveground mosquitoes with those underground failed, suggesting that the underground population may be a different species from the normal aboveground population. Interestingly, genetic differences were even found between mosquitoes living in different subway lines. The case is an interesting example of evolution in action, though the scientists involved are surprised at the extent of genetic difference in the separate populations. While the mosquitoes had only been separated for a century, they stated that the differences they found are similar to what one might expect from thousands of years of separation.
Sources: Anon. 1998. Report claims London Underground home to new species of mosquito. http://www.nandotimes.com, August 25. // Holden, Constance. 1998. Dead Medium: Mutant Mosquitoes in Subway Tunnels. *Science* 281: 1443.

Other Cryptozoology News

• Unconfirmed sightings of pumas (*Felis concolor*) in the Fryeburg area of Maine, on the New Hampshire border, have prompted the Maine Department of Inland Fisheries and Wildlife to advise the Fryeburg Board of Selectmen to warn residents to be on the lookout for the big cat. Officially, however, pumas disappeared from Maine in the late 1930's. Sightings have not been too uncommon in the state in recent years. In 1996 a woman saw what she thought was a puma in Cape Elizabeth; game wardens who searched the area afterwards found fur stuck to a tree, which was later analyzed and confirmed to have been that of a puma. Unsurprisingly, most wildlife researches in Maine are quite convinced pumas are still present there, but many think that the sightings are the result of a lone individual that has been released by humans, rather than the result of a native population of pumas.
Source: Anon. 1998. Selectmen Warn Residents to be on the Lookout for Mountain Lion. *Portland's Maine Sunday Telegram*, August 16.

• An expedition to Sweden's Storsjoe Lake (Great Lake) in search of its resident monster took place this past summer. The effort was led by veteran Loch Ness monster researcher Adrian Shine. Despite deploying 15 boats, sonar, video cameras and divers on and in a 3 km^2 (2 $mile^2$) area of the 260 km^2 (160 $miles^2$) lake, the effort failed to turn up anything significant, with the exception of some inconclusive sonar contacts. There are 175 sightings of the monster, dating back 400 years, but descriptions are far from consistent. Named Storsjoeodjuret (Great Lake Monster), the creature has been described variously as being 5 to 15 m (16 to 50 ft) long, serpent-like or plump, and coloured grey, green or red. It has also been said to possess a dog-like or fish-like head, and to make a wailing, or rattling, noise. Though the team failed to gather any evidence for the creature's existence, they did make some speculations as to its identity. Sensibly discarding theories that the monster is a mammal (the lake freezes over in the winter, making it hard for an air-breathing mammal to survive beneath) or a living dinosaur, they decided the most likely culprit, if the monster exists at all, is a "big fish." Shine suggested it may be a variation of the giant European catfish or wels (*Silurus glanis*) (Fig. 3), which grows to a maximum length of 5 m [16 ft] and weight of 330 kg [730 lb]). In my opinion, this is a reasonable idea.
Sources: Anon. 1998. Search fails to find lake monster. *Associated Press*, August 17. // Heintz, Jim. 1998. Swedes Comb Water for Shy Monster. *Associated Press*, August 16. // Jacobson, Phillip. 1998. Hunt for Nessie moves to Sweden. *Sunday Telegraph*, August 23. // Maitland, P.S. 1972. A key to the freshwater fishes of the British Isles. *Sci. Publ. Freshw. Biol. Ass.* 27: 1-137.

Fig. 3. European catfish or wels (*Silurus glanis*). From Maitland (1972).

• Recently, a roe deer carcass that had been stripped in a manner similar to that reported for alleged big cat kills in the U.K. was found associated with large droppings in Durris on Deeside, Scotland. The veterinarian that made the find was intrigued and took the feces (which were full of hair from the deer) to Dr. Martyn Gorman, senior zoology lecturer at Aberdeen University and a carnivore expert. The droppings were even larger than leopard droppings that Gorman had been recently studying, and were very unusual, puzzling the other carnivore specialists in the University. Gorman asked his colleague Dr. John Dallas, a molecular ecologist, to analyze the feces for DNA, and to compare the resulting DNA to that of various large carnivores. The result? The droppings were undoubtedly those of

a fox. Gorman and Dallas sensibly concluded that while some stripped deer carcasses and large droppings attributed to alien big cats may have been caused by foxes, it is unlikely that foxes are responsible for all such incidents. Regardless, we can only hope that further fecal samples obtained of alleged big cats in the U.K. are analyzed using Dallas' method.
Source: Smith, Graeme. 1998. Big cat theory takes a mauling as DNA tests track the real killer to his den. *The Herald*, June 27.

• Darren Naish relates an interesting note about the existence of a fossilized Pliocene (5 to 1.6 mya) "swan-necked seal" from Peru. *Acrophoca longirostris*, a phocid seal (*not* an otariid sea lion-like animal), was about 2.5 to 3 m long, and had a pointed skull attached to an elongated, S-curved neck. The existence of this species brings to mind Oudemans' "*Megophias*" and Heuvelmans' "*Megalotaria*", two hypothetical long-necked pinnipeds (Heuvelmans specifically suggested an otariid identity) that they saw as responsible for some sea serpent sightings. However, as Naish rightly pointed out, there is no evidence that the "long-necked" sea serpents and lake monsters are at all related with *Acrophoca*.
Source: Naish, Darren. 1998. Post to the Cryptozoology List, May 18.

• The "Skunk Ape", Florida's famous sasquatch-like creature, has reportedly been photographed. On September 8, 1998, Dave Shealy, owner of the Florida Panther Gift Shop on U.S. 41 in Ochopee, Florida, took 27 photographs of what he thinks was a 7-ft tall skunk ape. Shealy, who claims to run the world's only skunk ape research center, managed to take the photographs by spending about two hours every night over the last eight months sitting in a tree lookout in the Everglades. Below his lookout is his bait—lima beans. He considers them to be among the skunk ape's favourite food. On the night of September 8, he said, "I dozed off for a little while, and when I woke up I saw it coming straight at me. At first I thought it was a man, but then I realized it was the skunk ape." The skunk ape was about 50 yards away, and Shealy photographed it as many times as possible. Shealy admitted the possibility that the creature might have been someone in a gorilla suit, but said someone would be crazy to do that, especially during hunting season. The day after his sighting, he returned to the area and found large tracks associated with smaller ones, which he considered to be from a baby skunk ape. Shealy estimates there are nine to twelve skunk apes living in the Florida Everglades (despite the extremely low genetic feasibility of this very small population), and thinks the reason we haven't found "fossils" (or does he mean unfossilized remains?) is because the animals are, apparently, skilled at covering up their dead. Shealy's claims have landed him interviews with several television programs and tabloids around the world. He even led an unsuccessful hunt for the skunk ape with Comedy Central, an American specialty cable channel, and is now leading an expedition with a crew from the popular television serial "Unsolved Mysteries". Shealy guesses that the media attention has garnered him as much as $30 million in free advertising, but says that he has made no money from his sightings. However, about 50 people visit his gift shop every week, many brought in by his "free advertising". A story in the *Naples Daily News* remarked that Shealy's only skunk ape sightings have occurred during periods of slow business at his shop, though Shealy unsurprisingly insists that his encounters are not a publicity stunt. He plans to keep his nightly vigils, and says: "There is absolutely no doubt in my mind that the skunk ape exists. If it is a hoax, I'm not aware of it." As for the photographs, the word is that they are very dark and lack contrast. Frankly, I'm not surprised.
Sources: MacCormack, Michael. 1998. Florida's Skunk Ape Photographed. *Naples* [Florida]*Daily News*, September 12. // Tiansay, Eric. 1998. TV show sends crew to solve mystery of the skunk ape. *Naples* (Florida)*News*, October 10.

• A screaming, hairy, 9-foot-tall man-like beast with yellow eyes was reportedly seen on the night of September 26 near Hayfork, California, about 200 miles north of San Francisco. Tim Ford, 22, told California Department of Fish and Game officials in Redding that he and a friend saw the creature, which he believes was undoubtedly a sasquatch, from a distance of about 45 m (150 ft) while on a camping trip with five others. He said the creature left tracks 6 inches (15 cm) wide and 20 inches (50 cm) long and was not a bear. He stated that none of them had been drinking or taking drugs. California Department of Fish and Game spokesman Paul Wertz said sasquatch sightings are not unusual in the area but added that the agency would probably refrain from investigating the sighting. "We don't have

a management plan for Bigfoot," Wertz said.
Source: Anon. 1998. Redding man claims spotting Bigfoot. *Fresno* (California) *Bee (http://www.sacbee.com/news/calreport/fres_wrapper.cgi/N26.html)*, October 2.

• In *The Cryptozoology Review* Vol. 2 No. 3, I mentioned that new evidence from New Zealand's South Island suggested that the supposedly extinct South Island kokako (*Callaeas cinerea cinerea*) may still survive. Now, more evidence has come to light. Two hunters say they heard and spotted what they thought was the bird while hunting in a Buller forest on September 19, 1998. They reported their sighting to Timberlands West Coast staff who contacted local ornithologist Rhys Buckingham, who was involved in previous efforts to find the bird. Buckingham soon went into the area to do preliminary investigations, but was turned back by bad weather. However, the scientist is set to return to the area in early October to commence a bird survey of the area that will last until January (1999).
Source: Anon. 1998. Low-flying SI kokako, hunters believe. *The Press of New Zealand On-Line Version (http://www.press.co.nz/38/98092606.htm)*, September 26.

• After a hiatus of five years, the Flathead Lake monster of northwestern Montana has been seen again. The encounter occurred on August 18, 1998, when an angler (who wishes to remain anonymous but who reported the incident to Jim Vashro, regional fisheries manager for the Department of Fish, Wildlife and Parks in Kalispell) was fishing in the vicinity of Gravel Bay, on the lake's eastern shore. The angler was reeling in a small lake trout he had hooked at a depth of about 120 feet (37 m). As the small fish neared the boat, the angler noticed a large shape, "several feet long", tracking the smaller fish. The much larger creature was observed for several seconds, and the body "shape ... and tail fin were characteristic of a sturgeon." The sighting was the first since 1993, when eleven were recorded. The Department of Fish, Wildlife and Parks has a total of 78 sightings dating back to 1889. Of those, 25 fit well with the description of a large fish, which could be a white sturgeon (*Acipenser transmontanus*) (Fig. 4). The remaining 53 reports generally describe "a creature greater than 10 feet [3 m] long", according to Vashro. Some reports cite lengths of as much as 60 ft (18 m) long. These sightings are characterized by descriptions of "humps and smooth skin" and a "snake-like or eel-like" shape. Regarding these sightings, Vashro says: "Something certainly seems to be going on. Very credible people have seen something variously described as a large fish or some kind of monster-like creature, usually quite long in length." Vashro doesn't claim to give any credence to the existence of such an animal, though he does remain open-minded to the idea. Personally, I think that these sightings, if they are to be believed (I think, for example, that the sightings of a 60 ft long creature are too extreme), may be caused by the white sturgeon, which is thought to be responsible for the smaller sightings. The white sturgeon is the largest North America freshwater fish, growing up to 6.1 m (20 ft) in length and weighing as much as 900 kg (1 980 lb) (Coad 1995). The sighting of a sturgeon—an unusual, eel-shaped fish—of these dimensions could very easily cause tales of a giant lake monster, and could conceivably cause exaggerations in size.
Sources: Coad, Brian. 1995. *Encyclopedia of Canadian Fishes*. (Ottawa: Canadian Museum of Nature). // Henckel, Mark. 1998. Flatwoods Monster Seen Again. *Billings* [Montana] *Gazette*, September 6.

Fig. 4. White sturgeon (*Acipenser transmontanus*). From Coad (1995).

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A Critical Evaluation of the Supposed Contemporary Existence of *Carcharodon megalodon*

by Ben S. Roesch

Many consider the white shark (*Carcharodon carcharias*) to be among the most incredible creatures to roam the oceans today. Growing to lengths upwards of 6 m (20 ft) and weights of more than 3 000 kg (7 500 lb), this large lamnid shark is responsible for occasional attacks on humans. It has become the quintessential shark to many, especially after the success of the movie *Jaws*, which made the white shark's name and toothy visage infamous.

About 16 million years ago during the Miocene (1), however, an even larger shark, possibly similar to the *C. carcharias*, appeared in the world's oceans. *Carcharodon* (or *Carcharocles*) *megalodon* may have attained an astonishing maximum length of 15 m (50 ft), and weighed as much as 50 tonnes (55 tons) (Gottfried et al. 1996). Such estimates are gleaned from teeth and very rare skeletal components of the animal (sharks have a cartilaginous skeleton that does not readily fossilize; most species of fossil sharks are known from their teeth only, which are very durable structures). Traditional research holds that *C. megalodon* was ancestral to the white shark, but recent research suggests that it was actually a close relative (2). Authors such as Gottfried et al. (1996) envision *C. megalodon* as a much larger and bulkier version of this white shark. With a mouth large enough to swallow a cow whole and broad, triangular teeth much like those of the white shark (but up to 17 cm [7 inches] high, as opposed to a maximum of 6 cm [2 inches] in white sharks [Fig. 1]), *C. megalodon* apparently fed on primitive whales and other large marine mammals (Fig. 2) (3). It is possible that *C. megalodon* hunted in the same stealthy manner that white sharks often

(1) Some evidence exists that suggests that *C. megalodon* appeared as early as the Eocene, about 50 million years ago, but these finds are largely discounted by most researchers as results of misidentification or poor documentation (Ellis and McCosker 1991; Applegate and Espinosa-Arrubarrena 1996; Purdy 1996).

(2) There is a fair amount of controversy over the phylogeny of *C. megalodon* . Some researchers think it is related to the white shark and therefore deserves to be placed in the genus *Carcharodon*. Others subscribe to the theory that *C. megalodon* is only a distant relative of the white shark, and that it should be given its own genus, *Carcharocles*, and placed in a separate lineage that gave way to the modern day odontaspidid sand tiger sharks (Cappetta 1987). (If the latter theory is true, than *C. megalodon* may not have looked much like the white shark, but possibly more like an oversized sand tiger shark with much larger and broader teeth [Richard Martin in prep.].) For the sake of stability, the more popularly used genus, *Carcharodon*, is used in this discussion. It should be noted, however, that in the paleontological literature, *Carcharocles* is presently the favoured genus for *C. megalodon* (Richard Martin pers. comm.). For more details on the *Carcharodon* vs. *Carcharocles* debate, see various papers in Klimley and Ainley (1996) and paleoichthyologist Jim Bourdon's web site at http://www.elasmo.com/

(3) A significant part of the white shark's diet at all growth phases consists of fishes, and *C. megalodon* was certainly piscivorous as well. Because of its large size, however, *C. megalodon* was probably more reliant on marine mammals as a food item than is the white shark. Like extant tiger sharks, *C. megalodon* may have also scavenged to a greater extent than does the white shark, augmenting its diet in its nutrient-poor tropical environment (Richard Martin pers. comm.).

Roesch, Ben S. 1998. A Critical Evaluation of the Supposed Contemporary Existence of *Carcharodon megalodon*. *The Cryptozoology Review* 3 (2): 14-24.

employ to prey on pinnipeds—stalking prey from below and then rising up at a high speed to deliver a massive, often fatal first bite (4). About 1.5 million years ago at the end of the Pliocene, *C. megalodon* disappeared, due to a variety of possible reasons (Applegate and Espinosa-Arrubarrena 1996), some of which will be discussed below.

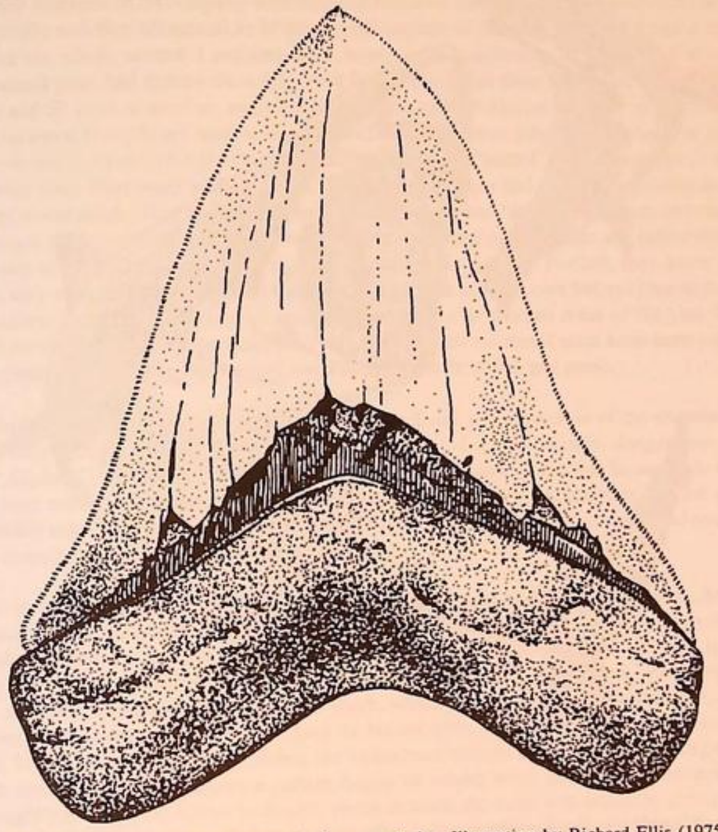

Fig. 1. Tooth of *Carcharodon megalodon*, actual size. Illustration by Richard Ellis (1975).

Despite the general consensus among zoologists and paleontologists that *C. megalodon* is extinct, it has been suggested by several cryptozoologists and other researchers (e.g. Stead 1963; Clark 1968; Clostermann 1969; Perry 1972; Cartmell 1978; Goss 1987; Bright 1989; Corliss 1991; Shuker 1991, 1995, 1997) that this enormous shark may continue to exist in the deep-sea or another remote part of the ocean. These proponents of *C. megalodon* survival cite a small body of 'evidence' to support their claim, including eyewitness accounts, unfossilized and recently fossilized *C. megalodon* teeth, and the discovery of the megamouth shark (*Megachasma pelagios*) in 1976. (Other researchers, such as Ellis [1975, 1994], Ellis and McCosker [1991], and, to a lesser extent, Steel [1985], provide a level-headed, yet open-minded, review of the question of *C. megalodon* survival). It will be argued below, however, that all of this proposed evidence is weak, and that the suggestion of present-day survival of *C. megalodon*

(4) This is a rather simplistic view of white shark predatory behaviour, and recent research hints at more complicated and dynamic interactions between it and its prey.

does not conform with accepted paleontological and ecological knowledge.

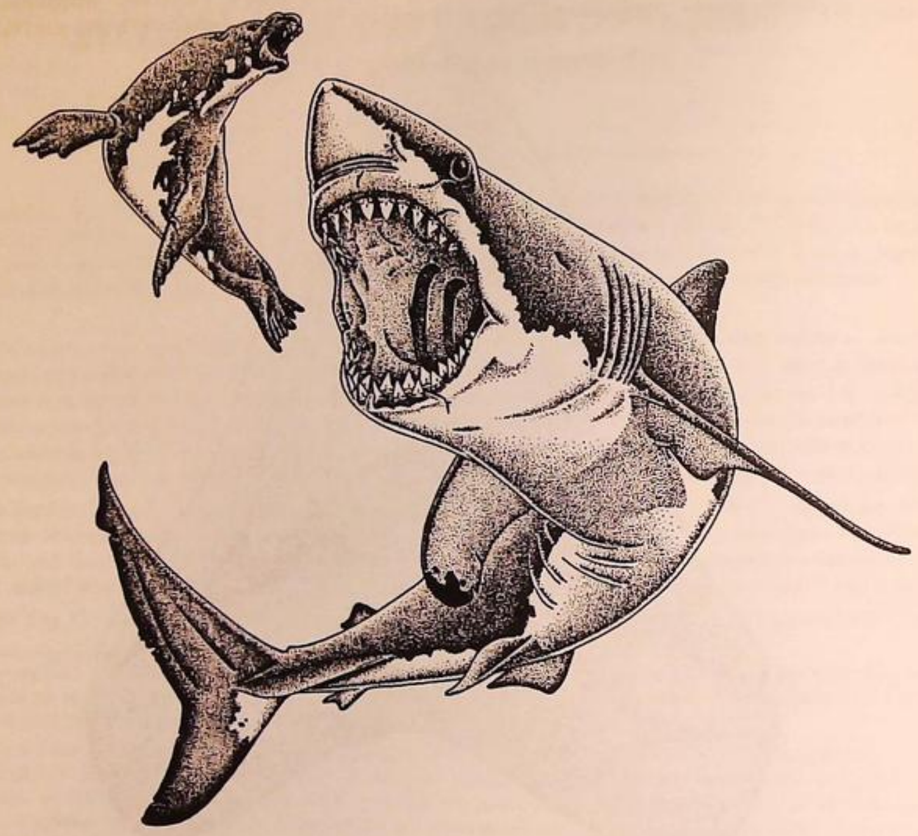

Fig. 2. In a Miocene sea, *Carcharodon megalodon* chases down an early pinniped called *Allodesmus*. From a forthcoming book written and illustrated by Richard Martin. Artwork Copyright Richard Martin, 1998.

Eyewitness Accounts

A few reports of alleged encounters with large, unidentified sharks have been proposed as evidence for *C. megalodon* survival. One of the most widely cited is an extraordinary tale recounted by Australian naturalist David Stead (1963: 45-46):

> In the year 1918 I recorded the sensation that had been caused among the "outside" crayfish men at Port Stephens, when, for several days, they refused to go to sea to their regular fishing grounds in the vicinity of Broughton Island. The men had been at work on the fishing grounds—which lie in deep water—when an immense shark of almost unbelievable proportions put in an appearance, lifting pot after pot containing many crayfishes, and taking, as the men said, "pots, mooring lines and all". These crayfish pots, it should be mentioned, were about 3 feet 6 inches [1.06 m] in diameter and frequently contained from two to three dozen good-sized crayfish each weighing several pounds. The men were all unanimous that this shark was something the like of which they had never dreamed of. In company with the local Fisheries Inspector I questioned many of the men very closely and they all agreed as to the gigantic stature of the beast. But the lengths they gave were, on the whole, absurd. I mention them, however, as a indication of the state of mind which this unusual giant had thrown them into. And bear in mind that these were men who were used to the sea and all sorts of weather, and all sorts of sharks as well. One of the crew said the shark was "three hundred feet [90 m] long at least"! Others said it was as long as the wharf on which we stood---about 115 feet [35 m]! They affirmed that the water "boiled" over a large space when the fish swam past. They were all familiar with whales, which they had often seen passing at sea, but this was a vast shark. They had seen its terrible head which was "at least as long as the roof on the wharf shed at Nelson's Bay." Impossible, of course! But these were prosaic and rather stolid men, not given to 'fish stories' nor even to talking about their catches. Further, they knew that the person they were talking to (myself) had heard all the fish stories years before! One of the things that impressed me was that they all agreed as to the ghostly whitish color of the vast fish. The local Fisheries Inspector of the time, Mr Paton, agreed with me that it must have been something really gigantic to put these experienced men into such a state of fear and panic.

This report initially sounds promising, especially considering Stead's proclamation of the witnesses' integrity. But how can we actually believe a report that speaks of a 150-300 ft (35-90 m) creature—longer than any other animal ever recorded? Shuker (1991, 1995, 1997) contends that, if the account is true—as he seems to believe—fear and surprise could have resulted in these unbelievable figures. Shuker expresses confidence that the actual size of the creature responsible must still have been gigantic to instil such a shock in the fishermen. Stead and Shuker propose that a living *C. megalodon* would be a near-perfect match.

I remain unconvinced. Admittedly, I cannot disprove this story because of its anecdotal nature, but that trait alone would be grounds enough for most scientists to dismiss it as an unverified "fish-story". Even if one is asked to ignore the inadmissibility of anecdotal evidence, the enormity of the alleged shark sighted is absurd, even if exaggerated by shock. The "ghostly whitish color" of the alleged animal is also bizarre. Very few marine animals maintain such a colouring; certainly not the white shark, which despite its name is only white on its underside, whereas its back is a distinct dark charcoal grey or bronze-grey. This demarcation is termed dorsal-ventral countershading. In many sharks and pelagic fishes, the darker back reduces contrast with the background and renders the animal less conspicuous. This allows a certain degree of stealth when stalking prey or avoiding predators. Traditional thought holds that the lighter underside works in much the same way when the animal is viewed from below, by matching the down-welling light and eliminating some of the silhouette effect. There is actually an insignificant reduction in silhouette under ambient light conditions. *C. megalodon* is believed to have occupied a neritic lifestyle much like the white shark (see below), and it is likely that it was similarly countershaded. Thus, the ghostly white shark seen in 1918 appears to be at odds with a well-known environmental adaptation.

Also worth noting in reference to the colour of the 1918 alleged shark is that while some researchers have suggested that the resurrected *C. megalodon* might live in the deep-sea (see below), deep-sea sharks certainly are not white—in fact most are uniformly dark, both on the dorsal and ventral surfaces of their bodies. (I mention this because I can imagine that some supporters of *C. megalodon* survival might suggest that the whitish colour of the 1918 alleged shark could be an adaptation to the virtually lightless deep-sea. It seems instilled in the minds of many that a dark environment results in white animals. While this is the case in many cave animals and a few deep-sea creatures, lack of pigmentation is certainly not a general feature of deep-sea animals).

Shuker (1995) and Goss (1987) include two more reported sightings of very large sharks that they interpret as

possible evidence for *C. megalodon* survival. One involved Zane Grey, the famous author of western novels and an avid deep-sea angler, and the other his son Loren. (Not having access to the Grey's original works in which their sightings are recounted, I rely on Goss [1987] for details). The first sighting occurred when Zane Grey was deep-sea fishing off Rangiroa in the South Pacific in 1927 or 1928. Glancing over the boat's railing, he spotted an enormous "yellow and green" shark with a "square head, immense pectoral fins and a few white spots." Grey claimed it was "considerably longer than my boat—conservatively between 35 and 40 feet [10.5 and 12 m]." Some New Zealand fishermen aboard who also saw the great shark agreed with Grey's estimate. Initially, Grey thought the shark was a whale shark (*Rhincodon typus*) (Fig. 3), which grows to a length of at least 12 m (40 ft), but according to Goss (1987) Grey thought "only the size of this ... shark was the same; otherwise it was in no way similar." Here I beg to differ with Grey. Not only does the size correspond well, but whale sharks also have very wide, squarish heads, enormous pectoral fins and are covered with white spots (admittedly, Grey mentions only "a few" white spots, but the degree of spotting in whale sharks is highly variable among individuals and by body region [Richard Martin pers. comm.]). Nonetheless, Grey stated: "I figured out that the fish ... was not a harmless whale-shark but one of the man-eating monsters of the South Pacific. Then I was more frightened than I remember for a long time." Despite his dramatic style, I would identify Grey's shark as a whale shark long before suggesting that what he saw was a living *C. megalodon* or, say, an enormous tiger shark (*Galeocerdo cuvier*). (This latter species may exceed 5 m [16 ft] in length and has a characteristically squarish snout. Grey caught a great number of tiger sharks in his day and was probably thinking of them when he wrote the above quoted phrase.)

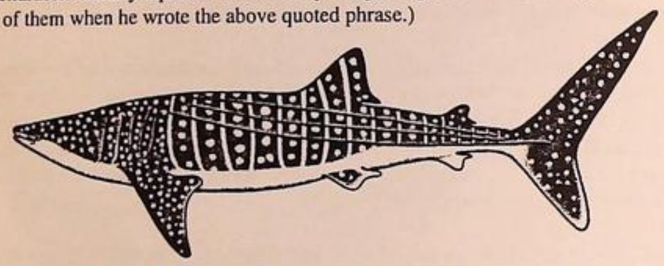

Fig. 3. Whale shark (*Rhincodon typus*). Illustration by Richard Martin (1995).

The second sighting took place in 1933, again off the coast of Rangiroa. Aboard the S.S. *Manganui*, Grey and his son Loren were returning to San Francisco after a fishing trip to Tahiti. One evening at about 5:00 p.m., Loren was at the rail when he saw a small flock of spiralling sea gulls and, near by, an area of yellow water (5):

> At first I thought it was a whale, but when the great brown tail rose in the ship's wake as the fish moved ponderously away from the liner, I knew immediately that it was a monstrous shark. The huge round head appeared to be at least 10 to 12 feet across if not more ... It was my belief that this huge, yellowish, barnacled creature must have been at least 40 or 50 feet long. He was not a whale shark: the whale shark has a distinctive white purplish green appearance with large brown spots and much narrower head. So what was he—perhaps a true prehistoric monster of the deep?
>
> What we had seen was something [that] no ichthyologist had ever dreamed existed. The largest known specimen of this type of shark, generally known as a sand shark or black-tipped shark, had hardly been known to exceed a length of about 15 feet.

Despite Loren Grey's assertions that what he saw was not a whale shark (mirroring his father's reaction to his own sighting), it is most likely that that is exactly what is was. Grey's description of a whale shark is completely

(5) The yellow water mentioned by Loren Grey could have been the result of a plankton bloom or coral spawn---an occurrence that often attract whale sharks (Richard Martin pers. comm.).

erroneous: whale sharks are a dark grey, greenish grey or reddish colour above, with many white or yellowish spots and transverse stripes, and are yellowish or white on the underside (Castro 1983). As mentioned previously, they also have a very wide, squarish, yet slightly rounded head. All of these traits fit well with Grey's description.

Both of the sharks seen by the Greys were at the surface, which mirrors whale shark behaviour. In deep waters, many pelagic and neritic sharks, including the white shark, stay deep much of the day, near the thermocline (where the warm surface water layers sit on and mix with the colder deeper layers). In shallower waters, sharks like the white shark stay near the bottom most of the time, usually only visiting the surface during feeding. The planktivorous whale shark, on the other hand, is often seen browsing the surface layers of the water column, where its food often reaches the highest concentrations.

(Shuker [1995] suggested that the creature that the Greys spotted may be the same responsible for a traditional belief among Polynesian (6) fishermen in New South Wales, Australia. They speak of an enormous 100 ft [30 m] long sea monster, not unlike a white shark, which they call the Lord of the Deep. Such a parallel, however, is completely speculative without further evidence showing an identifiable similarity between this mythical animal and the Grey's sightings.)

The last eyewitness accounts interpreted as being of *C. megalodon* are put forward by Cartmell (1978). His first piece of evidence is sonar trackings by "one of the new breed of underwater exploratory vehicles" of an unidentifiable object about 100 ft (30 m) long that was travelling faster than any submarine. The absurdity of this account—which supposedly serves as evidence for *C. megalodon* survival—will not be commented upon. Cartmell also mentions another eyewitness account of a giant shark:

> In the 1960's along the outer edge of Australia's Great Barrier Reef, an 85 foot [26 m] ship experienced engine trouble which forced it to weigh anchor for repairs. Although the men subsequently refused to openly report what they had seen for fear of public ridicule, the captain and his crew later told friends of sighting an immense shark as it moved slowly past their ship. Whitish in color, they were awed by its size. It was as long if not longer than their boat! Experienced men of the sea, they too were certain the creature was not a whale.

Cartmell provides no references for his claims, so without verifiable sources, the above stories (the latter of which drips with tabloid style and reads much like a rewritten account of the 1918 giant shark) are useless as evidence.

What is one to make of these alleged sightings? A whale shark identity does not fit perfectly with the Grey's sightings, but does, however, provide the most sensible and believable explanation. As for the 1918 giant shark, I remain unconvinced that the story is true. Cartmell's stories are, as mentioned above, even more unbelievable. In any case, the usage of these five unconfirmed and dubious anecdotes as evidence for the resurrection of a giant, extinct shark is ridiculous. As is the case with a large percentage of cryptozoological sightings, the above reports simply are not worthwhile evidence: they are lacking in details, corresponding eyewitness accounts, and overall reliability. If, for example, there were 50 similar sightings of an enormous shark in the South Pacific or elsewhere that did not fit a whale shark identity, attention might be warranted. As it stands, however, there are only five sightings (two of which can be reasonably attributed to whale sharks) and they are highly questionable ones at that. Eyewitness accounts provide no good evidence for the proposed modern-day survival of *C. megalodon* .

Evidence from Teeth

One of the most persistent and erroneous myths in the case of alleged *C. megalodon* survival is the claim that

(6) It is probable that Shuker meant Melanesian.

unfossilized *C. megalodon* teeth have been dredged from the ocean floor. The claim, cited as evidence by Cartmell (1978), Goss (1987), and Shuker (1991, 1997), ignores the ironclad fact that no unfossilized *C. megalodon* tooth has ever been found. This point has been expounded repeatedly by Ellis (1975, 1994) and Ellis and McCosker (1991), yet no cryptozoologist who has written about *C. megalodon* has bothered to acknowledge it. The myth of unfossilized *C. megalodon* teeth appears to have originated from at least three different publications, as discussed by Ellis (1975, 1994) and Ellis and McCosker (1991). The first is Whitley (1940) who wrote:

> *Fresh-looking* [my italics] teeth [of *C. megalodon*] measuring 4 by 3 1/4 inches [10 by 8 cm] have been dredged from the sea floor, which indicates that if not actually still living, this gigantic species must have become extinct within a recent period.

The next source is Smith (1953: 49), who wrote in his discussion of the white shark:

> Teeth 5 ins. [13 cm] long have been dredged from the depths, indicating Sharks of 100 ft. [30 m] with jaws at least 6 ft. [2 m] across. These monsters may still live in deep water but it is better to believe them extinct.

The third source is Stead (1963: 46). In reference to the 1918 Port Stephens giant shark (see above), he writes:

> Personally I have little doubt that in this occurrence we had one of those very rare occasions when humans have been vouchsafed a glimpse of one of these enormous sharks of the White Death [white shark] type which we know to exist, or to have existed in the recent past, in the depths of the sea. While they are probably not abundant they may yet be so. Lest the reader may still think me to be credulous I would like to say that I have seen actual teeth of a shark of this type which were no less than five inches (individually) across the base. They had been dredged up from the bottom of the Pacific Ocean. These, *I believe* [my italics], were not fossil teeth, such as are found in various Tertiary deposits—from which large quantities of great teeth of the White Shark type have been obtained. In my opinion they were so recent as to justify the belief that they had come from Great Sharks of a type which might still exist in the deep seas!

A reading of each of these quotations gives some idea as to how the myth of unfossilized *C. megalodon* teeth has crept into the literature. It is important to note that none of the authors—except Stead—are outright in their proclamation of the teeth as unfossilized. The teeth that Whitley and Stead examined are undoubtedly fossilized specimens dredged up by oceanographic surveys such as the *Challenger* expedition (1873-1876). When found, these teeth are encrusted in layers of manganese dioxide, a mineral that precipitates from sea water over thousands of years. As Ellis (1975) points out, these teeth are often discussed and illustrated in the literature after they have been cleaned of this coating. Such preparation often results in teeth that look like they have been plucked directly from the mouth of a live shark, except for the fact that they are not white but rather a brownish or blackish colour. Many of these teeth are very well preserved, and some have even been found that are a whitish colour (Richard Martin, pers. comm.), possibly a result of geographical and/or biogeochemical variability of the concentration of certain precipitating elements. Such features could conceivably trick an untrained observer (neither Whitley nor Stead were paleontologists) into thinking the teeth were unfossilized.

Surely, the teeth noted by Smith are also fossilized specimens dredged up by oceanographic expeditions. However, because he does not specify that they were fossilized, his comments have been taken as suggestive of the discovery of unfossilized, fresh *C. megalodon* teeth from the abyss. Despite the persisting rumours of such fresh *C. megalodon* teeth—rumours which appear to have originated from the above three inconclusive sources—the fact remains that all those discovered to date are unequivocally fossilized.

Supporters of *C. megalodon* survival have also looked to fossilized *C. megalodon* teeth for evidence that the species is still alive today. The basis for this argument involves two 12.5 cm- (5 inch-) high *C. megalodon* teeth dredged up from 4 300 m (14 300 ft) in the South Pacific by the *Challenger* expedition. Both of the teeth were encrusted in manganese dioxide; one had a 1.7 mm (0.067 inch) layer of the mineral and the other a layer of 3.64 mm (0.14 inches). In 1959, Dr. W. Tschernezky of London's Queen Mary College dated the teeth by comparing the layer of manganese dioxide on them to an accepted rate of deposition of the mineral in the deep-sea, 0.15 - 1.4 mm per 1000 years. Using the lower value of deposition (see below), Tschernezky (1959) found the teeth to be only about 11 000 and 24 000 years old, respectively. Such a period is a mere blink in the scale of geological time, and Tschernezky's findings made many ponder the idea that *C. megalodon* did not go extinct near the close of the Pliocene about 1.5 million years ago, but survived until the end of the Ice Age. It is thus unsurprising that the proponents of *C. megalodon* survival used this evidence as another reason to believe that *C. megalodon* could still exist.

These proponents, however, are relying on a paper published nearly 40 years ago. Researchers now believe that this and all other claims of post-Pliocene *C. megalodon* teeth (some of which are more convincing than Tschernezky's work) are erroneous, representing reworked material from older deposits (Applegate and Espinosa-Arrubarrena 1996; John Bruner pers. comm.; Henry Mollet pers. comm.; David Ward unpubl. data). This means that *C. megalodon* teeth have been eroded from pre-Pleistocene deposits and redeposited in younger strata, such as those from the Pleistocene. Whereas reworked fossil bones often show wear from the process, shark teeth (and vertebrate teeth in general) are very durable structures that can withstand high pressures, erosive forces and long-distance transport. Their durability makes it difficult to determine if they have been reworked from older deposits. For example, teeth of fossil sharks reworked into present day beach deposits in southern England are microscopically identical in sharpness to teeth of present-day sharks (Darren Naish, pers. comm.).

Besides probably representing reworked material, a fundamental flaw in Tschernezky's findings lies in his use of manganese dioxide as an indication of geological age. Manganese dioxide deposition is far from constant, varying due to fluctuations in the concentrations of ions of iron (especially Fe^{2+}) and other elements in sea water. The presence of phytoplankton also plays a factor in the rate of manganese dioxide deposition, partly because Fe^{2+} is a key ingredient in photosynthesis. Therefore, when a plankton bloom occurs—often caused by an increased concentration of Fe^{2+}—more Fe^{2+} is removed from the sea water (often remaining removed for many years) and less is available to help form manganese nodules (Valiela 1995; Waller 1996; Richard Martin pers. comm.). Furthermore, Tschernezky only used the lower value of the manganese dioxide deposition rates to obtain his oft-cited age estimates. Some readers may have noticed that by using the higher values for manganese deposition, one obtains dates for the teeth at 1214 years old and 2600 years old, respectively. It is a mystery that the proponents of *C. megalodon* survival have never jumped on this fact to help support their claim. They would be in error to do so, however, as the large discrepancy in dates caused by the rather wide range of possible depositions of manganese is indicative of the unreliability of this method of dating. For example, if one found a hypothetical *C. megalodon* tooth that had a layer of manganese 50 mm (2 inches) thick, the approximate datings for that tooth would be 333 000 years old for the lower value (which Tschernezky used) and 36 000 years old for the high value. The difference between those two dates is 297 000 years. Utilizing the higher value consistently gives a date representing only 10% of that of the lower value. Such a large range of error is hard to accept and thus dating by rates of manganese deposition is inaccurate and unreliable.

One final piece of tooth "evidence" put forward by some *C. megalodon* survival supporters regards a story involving the Australian cutter *Rachel Cohen* (Clostermann 1969; Barloy 1985). While in an Adelaide dry dock in March 1954, workers found 17 teeth embedded in the ship's wooden hull that reportedly resembled those of the white shark. Unlike the white shark, however, the teeth were said to have been 8 cm (3 inches) wide and 10 cm (4 inches) high; the largest white shark teeth on record measure about 6 cm (2.5 inches) in height. The teeth were arranged in a semi-circle (typical of a shark bite) about 2 m (6 ft) in diameter, and the "bite" was near the propeller. The propeller shaft

itself was bent. The *Rachel Cohen*'s captain recalled a shudder the boat experienced one night during a storm near Timor, Indonesia. At the time, he thought it had been caused by a collision with a floating tree trunk, which are apparently common in the area. While this report makes entertaining reading, it is useless for a critical examination of supposed evidence for the present-day survival of *C. megalodon* . Even if the story is true, the sizes of the teeth may be exaggerated (Richard Ellis, pers. comm.), and it is even reasonable to suggest that the 'teeth' were misidentified (Richard Martin, pers. comm.) (7). The sources of the story are unreliable and give no references, which if provided could be used to verify or disprove the claim.

The Megamouth Analogy

Ever since the megamouth shark (Fig. 4) was accidentally discovered tangled up in a U.S. Navy deep-sea anchor in 1976, cryptozoologists have been keen on using it to point out that the oceans can still harbour large species unknown to man. Some proponents of modern-day *C. megalodon* survival have also used the megamouth to support their claim (e.g., Shuker 1995). However, the comparison of the megamouth with *C. megalodon* , or almost any other marine cryptid, is illogical.

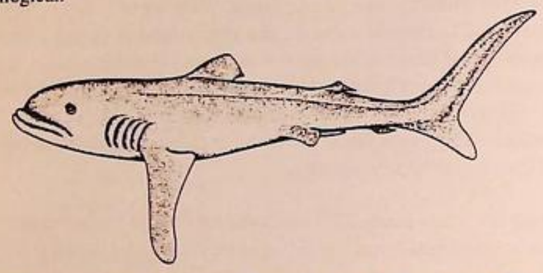

Fig. 4. Megamouth (*Megachasma pelagios*). Illustration by D. Bryan Stone III, from Castro (1983).

As a very general analogy, the megamouth does show that the oceans have a lot of secrets left to reveal, but one has to realize that the megamouth is by nature a very elusive, highly specialized and unique creature. Inhabiting mesopelagic waters (200-1000 m [660-3300 ft] in depth), it is a vertical migrator, following the diel (night/day) movements of its prey, euphausiid shrimps and other small marine animals. A megamouth tracked off California by Nelson et al. (1997) was found to stay deep in the water column during the day, at about 100-200 m (330-660 ft) or more; at night it moved shallower, to within 12-25 m (39-82 ft) of the surface. Because of its deep-water habits it is thus unlikely to be encountered by humans. Much of our knowledge of deep-sea creatures comes from long-lines and trawls set at depth, but these methods would not help in finding a megamouth. Being a planktivore, it would not be interested in a baited hook, and because of its large size it probably would not be swept up in a trawl (admittedly, this latter point applies equally to other hypothetical large marine cryptids). Also, many trawls have doors that close when the net is raised to the surface, and as far as we know, the megamouth does not cruise close to the sea floor. These factors, among others, highlight why the megamouth may have remained undiscovered for so long.

It is also important to note that the megamouth shark is highly adapted to its nutrient-poor deep-sea environment, with a poorly calcified skeleton, flabby muscles and a low activity level (Taylor et al. 1983). These and other

(7) A one-time loss of 17 teeth from a white shark or other shark represents a considerable reduction of dentition. Sharks continuously shed and lose teeth throughout their life, but they almost never lose more than a few teeth at a time. Typically, lost teeth are from the functional (outermost and oldest) series, with the lower teeth shed or lost more frequently than the upper teeth. If a shark really did chomp down on the *Rachel Cohen*'s hull, it would have been essentially toothless for sometime: a white shark that lost 17 teeth would be missing some 65% of its upper functional series and about 70% of its lower functional series. It is unlikely that a white shark or other shark would lose that many teeth with one bite (Richard Martin pers. comm.).

specializations represent millions of years of evolution, and cannot be achieved "over-night" by species with different adaptations and ecologies, including *C. megalodon* (see below).

The megamouth is not a useful analogy to support the existence of marine cryptids, including *C. megalodon*, unless the marine cryptid is proposed to be a highly-specialized mesopelagic planktivore. In our case, it is safe to say that *C. megalodon* was certainly not such a creature.

Ecological Counter-Evidence

The ultimate point that debunks the suggestion of modern-day survival of *C. megalodon* is the current paleoecological view of the shark. Simply put, all available evidence suggests that *C. megalodon* inhabited tropical waters and, like the extant white shark, was a coastal species (Purdy 1996). It was <u>not</u> a deep-sea inhabitant that fed on giant squids (*Architeuthis* sp.), as envisioned by many proponents of *C. megalodon* survival (e.g. Clark 1968; Shuker 1995). A creature as large and adapted to a coastal, warm and food-rich marine habitat as *C. megalodon* could not survive in the cold, food-poor deep-sea. Millions of years of evolution moulded *C. megalodon* to be an active, shallow-water predator of primitive whales, not a sluggish, deep-sea, squid-eating leviathan. In fact, *C. megalodon* may have died out due partially to the Pliocene extinction of a major food source, early baleen whales known as cetotheriids. (Other possible factors in the extinction of *C. megalodon* include changes in oceanic circulation, the closing of the Isthmus of Panama [which might have cut off access to mating and pupping areas] and even competition from other large predators such as orcas [*Orcinus orca*] [Richard Martin in prep.].) The whales that survived and evolved into the species we know today may have simply been too fast for *C. megalodon* to catch (Richard Martin in prep.). These new whales also showed a trend towards colder waters, to which *C. megalodon* was not suited. These factors resulted in a lessened food supply, and in a sense, *C. megalodon* may have starved to death.

Some proponents of *C. megalodon* survival might still say that *C. megalodon* could have adapted to a deep-sea environment after its accepted extinction date of about 1.5 millions years ago. This argument lacks all reason. Deep-sea fishes and other animals are extremely well adapted to the harsh conditions of their environment, with reduced skeletons and tissues, pressure- and temperature-insensitive enzymes, low activity and metabolic rates, and specialized foraging methods, among other adaptations (Ellis 1996; Helfman et al. 1997). Likewise, *C. megalodon* was probably well adapted to its very different shallow-water environment. The idea that *C. megalodon* could simply change all of its anatomical, physiological and behavioural specializations to adapt itself to a totally different environment, such as the deep-sea, is fatuous.

If *C. megalodon* were still alive today, than it would have to exist in the shallow, food-rich continental shelf waters to which it was so well adapted. I doubt that any serious proponent of *C. megalodon* survival would suggest that the great shark could remain undetected in this region. Like the extant white shark, *C. megalodon* surely fed near the sea surface at times, and if it were still alive today we would have ample evidence of its existence. Certainly, popular activities such as surfing, swimming and boating would become that much more hazardous with a 15 m, super-predatory shark swimming around.

Conclusion

The suggestion by some researchers and cryptozoologists that *C. megalodon* has survived to the present-day lacks any acceptable supporting evidence. Furthermore, the idea conflicts with current paleontological and ecological knowledge. The case of *C. megalodon* survival can thus be safely classified as a popular myth without any basis in fact. Pending further, substantial and tenable evidence, the question of *C. megalodon*'s continued existence should provisionally be considered answered: the shark is dead. In the opinion of this researcher, the question of *C. megalodon* survival warrants no further serious attention.

Acknowledgements

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A Possible New Species of Ziphiid Whale

by Darren Naish

It is cliché nowadays to refer to beaked whales (Ziphiidae) as the most poorly known of large mammals: nevertheless, this is a description that still rings true. Of the 20 presently recognized species, eight were described for the first time this century, and two were described for the first time this decade. These two most recently recognized species are of special interest because they represent the largest of all recently discovered extant animal taxa.

Mesoplodon peruvianus (Fig. 1a), referred to as the pygmy beaked whale (Ralls and Brownell 1991; Jefferson, Leatherwood and Webber 1993), lesser beaked whale (Carwardine 1995) or Peruvian beaked whale (Dalebout et al. 1998), was described in 1991 on the basis of 10 specimens which were captured or had beached on the Peruvian coast between 1975 and 1989 (Reyes, Mead and van Waerebeek 1991). Since then, *M. peruvianus* specimens have also beached on the Mexican coast (Ralls and Brownell 1991; Jefferson, Leatherwood and Webber 1993).

Mesoplodon bahamondi (Fig. 1b), for which the common name Bahamond's beaked whale has been proposed (Reyes et al. 1995), was described in 1997 on the basis of a single skull discovered on Robinson Crusoe Island off Chile (the journal issue it was published in was dated 1995 but this is evidently the planned, and not the actual, publication date). Cardenas, Yánez and van Waerebeek (1988) first reported this specimen as *M.* sp., and van Waerebeek (1996) was prepared to announce it as a new species in a short note published in 1996. Naish (1996) was the first reference to this species in the cryptozoological literature.

Evidence thus far unsupported by physical proof suggests that other extant ziphiid species remain to be described. One officially recognized potential species, *Mesoplodon* sp. "A", is only known from eyewitness and photographic evidence. It has been recorded from the eastern tropical Pacific (Pitman, Aguayo and Urbán 1987; Jefferson, Leatherwood and Webber 1993) and now the Peruvian coast as well (van Waerebeek, quoted in Papastavrou 1997; Pitman in press). Naish (1996) and Reyes et al. (1997) propose that *M. bahamondi* and *M.* sp. "A" are one and the same, but other identities, such as that *M.* sp. "A" is *M. pacificus* (Pitman, Aguayo and Urbán 1987; Nowak 1991; Naish 1996), are possible. Eyewitness reports of what might be other ziphiid species, also as yet unrecorded by physical evidence, have been discussed in the cryptozoological literature (Heuvelmans 1968, 1986; Naish 1996; Shuker 1997). A number of others have yet to be brought to widespread attention (Naish, in prep.).

A study recently published by Dalebout et al. (1998) is the first to try to provide a database for species-level identification of ziphiids based on mitochondrial DNA. The authors took genetic samples from 15 species of ziphiid which had been identified to species by a ziphiid worker, and which were represented by diagnostic skeletal or photographic evidence. The specific identity of these samples was therefore not in doubt and they were used as "reference" samples to which others, less securely identified or identified without the presence of diagnostic morphological data (referred to as "test" samples), could be compared.

A number of interesting discoveries resulted. Comparison of the "reference" samples to 20 "test" samples taken from animals which had stranded on new Zealand showed that four of these had been misidentified. One such sample, coming from an animal previously identified as *Mesoplodon bowdoini* (Andrews' beaked whale) (Fig. 1c) proved to

Naish, Darren. 1998. A Possible New Species of Ziphiid Whale. *The Cryptozoology Review* 3 (2): 25-28.

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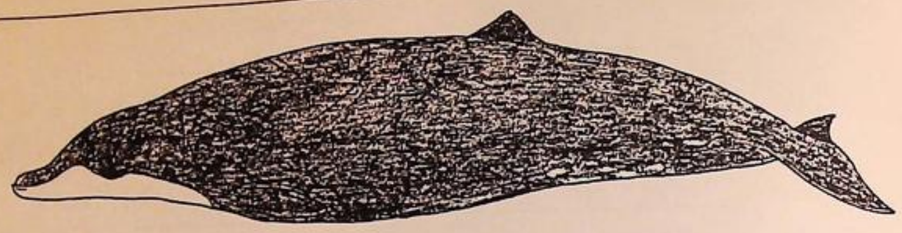

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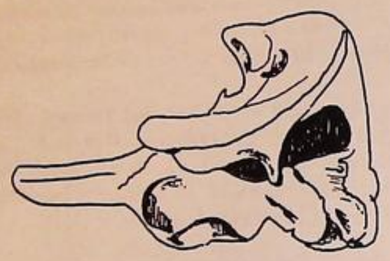

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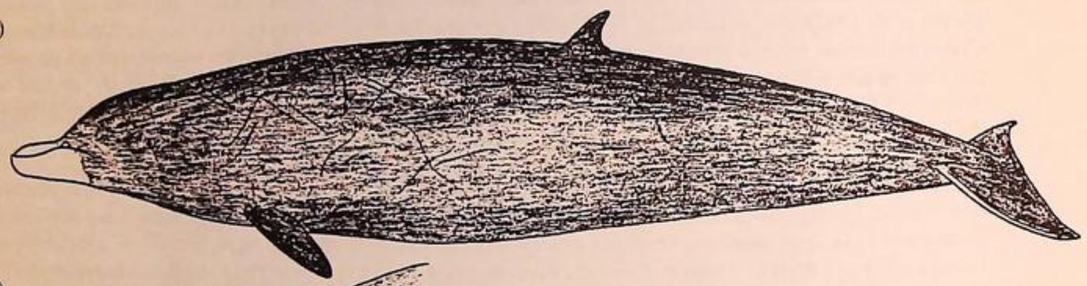

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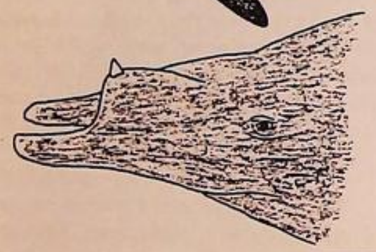

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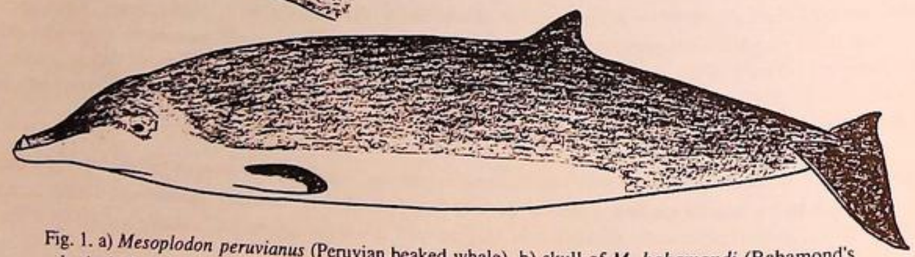

Fig. 1. a) *Mesoplodon peruvianus* (Peruvian beaked whale), b) skull of *M. bahamondi* (Bahamond's beaked whale), c) *M. bowdoini* (Andrews' beaked whale), d) head of *M. densirostris* (Blainville's beaked whale), and e) *M. hectori* (Hector's beaked whale). Illustrations by Darren Naish.

be *M. densirostris* (Blainville's beaked whale) (Fig. 1d). This is the first record of this species from New Zealand and means that the specimen involved joins a long list of other mesoplodonts which have also been misidentified as *M. bowdoini* (Guiler 1967; Nishiwaki 1962; Moore 1963; Tidemann 1980; Mead 1989). Even the holotype specimen of *M. carlhubbsi* (Hubbs' beaked whale), recognized as a new species by Moore (1963), was misidentified by Hubbs (1946) as a specimen of *M. bowdoini*. The discovery of *M. densirostris* on New Zealand, however, is not surprising as this species already had the widest known distribution of any mesoplodont. Its occurrence around the shores of New Zealand had already been predicted by Jefferson, Leatherwood and Webber (1993) and hinted at in Watson's (1988) distribution map.

Another sample came from an animal identified as *Ziphius cavirostris* (Cuvier's beaked whale), but which turned out to be from *Mesoplodon bowdoini* (Dalebout et al. 1998). This is also an important discovery because *M. bowdoini* is very poorly known, represented by only about 20 strandings worldwide and as yet unreported as a live animal by eyewitnesses.

In conjunction with the history of misidentification referred to above, *Mesoplodon bowdoini* has also been problematic because of its apparent closeness to *M. carlhubbsi*. Dalebout et al. (1998), however, found that *M. carlhubbsi* and *M. bowdoini* did not group together as close relatives, calling into question previous suggestions that they are sister-species or even conspecifics (Mead 1981, 1989). Curiously, in Dalebout et al.'s (1998) analysis, *M. bowdoini* grouped with *Tasmacetus* as a sister-group to the rest of *Mesoplodon*, implying that *Mesoplodon* is paraphyletic or biphyletic.

A particularly intriguing result is an extremely marked genetic difference observed between two specimens referred to as *Mesoplodon hectori* (Hector's beaked whale) (Fig. 1e), one from South Australia and the other from the North Pacific. The large difference recorded by Dalebout et al. (1998) between the two specimens was far greater than that observed within any other ziphiid species, and when included in a phylogenetic analysis, the two specimens occupied markedly different locations on the mesoplodont tree. This strongly suggests that a new mesoplodont species has been discovered by way of its addition to the molecular database.

For more than a century subsequent to its discovery on New Zealand in 1866 (Gray 1871), *Mesoplodon hectori* was assumed to be entirely austral in distribution. Then, in 1981, Mead (1981) published four stranding records, and referred to two sightings (both of which were photographed), which were of *M. hectori*, but were from the Californian coast. These demonstrated that *M. hectori* was present in the northern hemisphere. Rice (1978) had already published one of these photographs, but the animal was misidentified as *M. carlhubbsi*. Ellis (1980) also published one, but without a caption identifying the animal to species. More data on *M. hectori* in the northern hemisphere was published by Mead and Baker (1987).

All of these northern specimens may well pertain to the same species as *Mesoplodon hectori* from the south (they seem to, as all share good, diagnostic morphological characters (Mead and Baker 1987)). However, while both the northern and southern *M. hectori* specimens from which the samples used by Dalebout et al. (1998) were taken were reliably identified as having belonged to this species, it is evident that only one of them did. Which one cannot be determined without comparison of samples from more specimens (Dalebout et al. 1998). Dalebout et al. (1998) state that neither specimen matched the morphology that would be expected from any of the five species (they were unable to obtain samples from *Hyperoodon ampullatus* (northern bottlenosed whale), *M. bahamondi*, *M. ginkgodens* (ginkgo-toothed beaked whale), *M. pacificus*, and *M. peruvianus*). Based on their data then, the best conclusion at present is that a new mesoplodont has been discovered, and one that looks enough like *M. hectori* for it to be identified on morphological features as *M. hectori*.

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The Lambton Worm: A Cryptozoological Folklore Story From the Past

by Gordon Rutter

Whisht lads, haad yer gobbs
An aa'll tell yer an aaful story,
Whisht lads, haad yer gobbs
An aa'll tell yer boot the worm

So goes an old music hall song from North East England. It dates from 1862 and tells the tale of a local legend of a cryptozoological nature.

The occurrence upon which the story is based took place near the village of Lambton, some twelve miles from Newcastle. The exact date of the event is uncertain, but it probably took place during the Crusades; either during the eleventh, twelfth or thirteenth centuries. The tale is presented here as an example of a cryptozoological story from the past.

The story concerns one John Lambton, the eldest son of Lord Lambton. (This title still survives in part as the Earl of Durham.) John Lambton was a wayward son and regularly committed the sin of missing church. One particular Sunday (some versions specify the date as Easter Sunday) he was fishing on the banks of the River Wear. After many fruitless hours, his impatience got the better of him and he started to curse everything he could think of. He cursed the fish, he cursed the river, he cursed his luck and finally he cursed the day.

Much to his surprise, he soon after felt a sharp tug on his line. Expecting a large fish John landed his catch and found to his disgust a small and ugly worm. He was so displeased with this that he threw it down the nearest well and stormed off home.

As John grew older he saw the error of his ways and found religion. And in the manner of all good religious nobles of the time he went to Palestine as a crusader for seven years. During this time, he forgot all about his day of fishing and he eventually returned home as a hero.

However, during his time away many things had been happening at home. Chief amongst these was the massive increase in size of the worm. It had grown large enough to escape from the well and to move out and terrorize the local land. The worm was reported to eat sheep, cows and even small children when they lay down to sleep. The worm also enjoyed drinking the milk from the local dairy herd. Once the worm had finished a day of feasting and gorging, it tended to wrap itself around a nearby hill. At this point, a couple of discrepancies arise between the different versions of the story. Some versions say the worm wrapped itself around the hill three times, whereas others say nine times and some versions do not specify the number. The other discrepancy is which hill it actually was. One version claims it to be Penshaw Hill, a rather large hill for the area, now prominently topped with an impressive nineteenth century building.

The other and more popular choice is now called Worm Hill. The perimeter of its base is about one thousand feet around. Worm Hill is at least several hundred yards from the river Wear, and between the two there exists a spring

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used most recently as a watering-hole for horses. There is no extant well anywhere near this point. These descriptions fit better with the story than those for Penshaw Hill, so it is likely Worm Hill is indeed the hill mentioned in the story.

Because of the terror caused by the worm, Lord Lambton decided he must protect his lands. He employed the services of a number of knights to try and vanquish the worm. Seven knights tried and seven died. The beast seemed to be unstoppable. The only way that damage could be kept to a minimum was by actively placing food out for the beast, primarily the milk of twelve cows.

When Sir John returned home a reknowned knight, he was quickly appraised of the situation and the memory of his ill fated day of fishing returned. Realizing that the trouble ravaging the countryside was his fault, he resolved to right this wrong. Not being a foolish man, he decided he needed all the help he could get.

To this end he consulted the local "wise woman" or witch. She first told him to construct a suit of armour, studded with razor sharp spear heads. She then told him to seek out the beast—not on dry land as the previous seven knights had, but at its favourite rock in the middle of the river Wear.

Upon killing the worm, he was to destroy the first living thing he set eye upon. Otherwise, a terrible curse would descend upon his family for the next nine generations.

All preparations were made. His father had been instructed to release two hunting dogs upon hearing the sound of victory blown on John's hunting horn. The armour had been constructed and the battle was near. The night before confronting the monster, John remained alone, praying in the family's chapel. Early the next morning, he rowed to the monster's rock in the river Wear. The monster awoke from his slumber and saw him there. Enraged at this intruder, the worm rushed towards young Lambton and attacked him. John Lambton brought his sword down on the beast many times, but with little effect.

After toying with Lambton, the monster moved in for the kill. The great worm wrapped itself around Lambton with the intent of crushing the life from him. The pressure increased on Lambton but as the worm pressed harder, the blades on Lambton's suit of armour began cutting into it.

This enraged the worm further, causing it to press harder still. The vicious wounds caused by these blades weakened the creature, almost cutting it clear through. Lambton sprang into action and used his sword to cut the worm into several pieces. These fell into the river and were swiftly washed away. This stopped the segments from rejoining, as had occurred in previous encounters with the doomed knights.

The worm was finally dead. Lambton discarded his armour and swam to the shore. Remembering his pact, he took out his hunting horn and blew it to signal his father to release the dogs.

His father heard the horn, but was so overjoyed at his son's victory that he ran straight to him with the intentions of offering congratulations and comfort. John saw his father and turned his head away in sorrow. As father and dogs approached John lashed out at the nearest dog hoping to forestall the curse. The dog was killed, but it had not been the first thing that he had set eyes upon. Had he beaten the curse? Legend recounts that for the next nine generations all of the Lambton heirs died out of their beds (see below). The story has been handed down, as far as can be ascertained, in a relatively unaltered state.

All versions of the tale agree in all but some minor details. Outside the entrance to Lambton Hall stands a statue (there was originally a pair of them) dating from the seventeenth century. The statue depicts John Lambton battling with the worm.

Worm Hill still exists as a major local landmark. The land and hill were given to the people of the area during the nineteenth century. One of the stipulations of the continuing use of this land as a public amenity is that no excavations should ever be carried out upon it.

At the beginning of the nineteenth century, one Robert Surtees was shown a piece of material alleged to be the skin of the worm. It was reported as being leather-like in appearance. There is no record of this piece of material either before or after this incident, which may indicate that the story was more of a publicity stunt.

In terms of dates, there is disagreement, but Dufferwiel (1996) gave the following information: John Lambton's son drowned near the chapel where his father had made his vows prior to fighting the worm. Sir William Lambton was killed at Marston Moor during the civil war. His son, also called William, died at the head of a troop of Dragoons in 1643. Henry Lambton MP was reputed to be the last victim of the curse, dying of a heart attack whilst crossing the River Wear in 1761. If the lineage prior to Henry is taken back through nine generations it brings us to one Sir John Lambton, Knight of Rhodes. This dates the story to sometime during the twelfth or thirteenth century.

But did the worm actually exist? Like many cryptozoological stories, the tale of the Lambton Worm appears to describe an animal currently unknown to science. This record is now based only on hearsay, and there is no extant evidence, if indeed any solid evidence ever existed. The story, if true, is a fantastic one. The beast, if real, is an extraordinary one. Extraordinary and fantastic claims require extraordinary and fantastic evidence. In this case no evidence is available other than the story, so until evidence to the contrary emerges we must relegate this animal to a combination of folklore and moralistic fable.

One possible explanation, advanced by Dufferwiel (1996), is that the story recounts an attack by an army. When attacked, it broke up, merely to regroup, and much damage was done to the local villagers. It was not until the intervention of an experienced soldier—"John Lambton"—that the army could be defeated by superior tactics.

There are old British legends of many creatures similar to the Lambton Worm. On the whole such stories seem to peter out by the mid seventeenth century—or according to the stories these creatures were hunted to extinction by this date. Several tales relate that the beast in question had a great liking for milk, as well as for various animals and people. One story, dating from the fourteenth century, is unusual in that a tangible element of the the lore exists—the sword allegedly used to dispatch the Sockburn Worm is now housed in Durham Cathedral in County Durham.

On an individual basis, many of these stories are easy to dismiss as conjecture or fanciful storytelling, but enough are recorded to wonder if we are either reading stories about real creatures that existed in the near past, or are witnessing a iconographic cultural trend of monstrous "worms" used in moralistic stories. The latter hypothesis is certainly more believable, but perhaps the stories do have a basis in truth. In retrospect, we will probably never know.

Acknowledgements

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Coming Soon in *TCR*: Further installments of a review of alleged sea serpent carcasses (by Ben S. Roesch); further installments of a series on the cryptozoology of the moa (by Darren Naish); great news coverage and much more! The next issue will be out in March (1999).